Abstract. In this paper we are going to consider the problem of global data approximation on the basis of data containing outliers. For that purpose a new method entitled the moving least absolute deviations method is proposed. In the region of data in the network of knots weighted least absolute deviations local planes are constructed by means of which a global approximant is defined. The method is tested on the well known Franke’s function. An application in gridding of sonar data is also shown.